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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,925	06/27/2003	Chang Yeon Kim	049128-5122	3864

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MORGAN LEWIS & BOCKIUS LLP  
1111 PENNSYLVANIA AVENUE NW  
WASHINGTON, DC 20004

EXAMINER

SHERMAN, STEPHEN G

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/606,925

Applicant(s)

KIM ET AL.

Examiner

Stephen G. Sherman

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 April 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 14-17, 27 and 28 is/are rejected.
- 7) ☒ Claim(s) 5-13 and 18-26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This office action is in response to the amendment filed the 17 April 2006.

Claims 1-28 are pending.

### ***Response to Arguments***

2. Applicant's arguments filed the 17 April 2006 have been fully considered but they are not persuasive.

On page 15 of the amendment, under the title heading 'All Claims Recite Allowable Subject Matter,' in the second paragraph the applicant argues that the Ishizuka reference discloses independent anode line driving circuits as illustrated in Figure 8 and the reference current generating circuit together cannot be viewed as collective components that make up a data drivers. The examiner respectfully disagrees. The examiner's interpretation was that all of the recited components 200-203 make up a data driver since all of the components 200-203 are used to collectively drive the data lines, therefore the components constitute a data driver. There are no limitations stated in the claim that prevent this interpretation by the examiner.

On page 16 of the amendment, under the title heading 'All Claims Recite Allowable Subject Matter,' in the second paragraph the applicant argues that the Ishizuka discloses that each of the anode line drive control circuits include a drive current control circuit CC that generates a predetermined current I from an input

terminal  $I_{in}$  as well as a control current output circuit CO that generates a control current  $i_c$  for output terminal  $I_{out}$  as illustrated by Figure 11, and that Ishizuka fails to anticipate claims 1 and 14 because the same constant current is not applied to an adjacent current sink data drive part or an adjacent current source data drive part as claimed. The examiner respectfully disagrees. As recited in the office action this limitation is discussed in column 9, lines 10-15. In this section Ishizuka states that drive current  $i$  generated are **the same current** amount as reference current  $I_{REF}$ . Ishizuka further goes on to recite that the anode line driving circuit 201 generated the control current  $i_c$  having **the same current** amount as that of the light-emission drive current  $i$  and supplies it as a control current  $i_{c1}$  to the input  $I_{in}$  of the anode line driving circuit 202 via output terminal  $I_{out}$ . As stated, this means that  $I_{in}$  of anode line driving circuit 201 and  $I_{in}$  of anode line driving circuit 202 are **equal**. Therefore, since the examiner has interpreted that each of the anode line driving circuits 201-203 are current sink/source data drive parts, the same constant current is supplied to adjacent current sink/source data drive parts.

With respect to the argument for claims 27 and 28 found on page 17, first paragraph of the amendment, this argument is much the same as that as discussed above that the components 200-203 cannot be a data driver. Please refer to the examiner's explanation with respect to claims 1 and 14 stated above. To reiterate the examiner's point, the elements 201-203 are found inside of the data driver, and are connected in a cascade configuration as shown in Figure 8, each of the anode line driving circuits receives current from the previous anode line driving circuit.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 14-17 and 27-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishizuka et al. (US 6,756,951).

***Regarding claim 1***, Ishizuka et al. disclose a data-driving apparatus of an electro-luminescence display panel, comprising:

a display panel receiving a current signal to display an image (Figure 8, input image data); and

a data driver (Figure 8, items 200-203) having a plurality of current sink data drive parts (Figure 8, items 200-203. The examiner interprets that the anode line driving circuits could be current sink data drive parts.) in order to supply data to the display panel based on a constant current,

wherein at least one of the plurality of current sink data drive parts comprises:

a current sink data drive integrated circuit (Figure 8, item 200) for supplying the data to the display panel based on the constant current, and

a reference current supply/path part (Figure 8, item 200) for supplying the constant current to the current sink data drive integrated circuit and, supplying the same constant current to an adjacent current sink data drive part in a cascade circuit configuration (Column 9, lines 10-15).

**Regarding claim 2**, Ishizuka et al. disclose the data-driving apparatus according to claim 1. Ishizuka et al. also disclose wherein the current sink data drive integrated circuit comprises:

a constant current switching device connected between a voltage source and a ground voltage source (Figure 11, Q<sub>e</sub> is connected to V<sub>BE</sub> and to ground through R<sub>Q2</sub>.); and

a plurality of constant current supply switching devices (Figure 11, Q<sub>1</sub>-Q<sub>m</sub>), each connected to the ground voltage source (Figure 11, Q<sub>1</sub>-Q<sub>m</sub> are connected to ground through Q<sub>e</sub> and R<sub>Q2</sub>.) to form a current mirror circuit with the constant current switching device for supplying the constant current to data lines of the panel by way of selecting switch devices corresponding to the constant current controlled at a 2<sup>n</sup> level through the constant current switching device (Column 6, line 54 to column 7, line 10).

**Regarding claim 3**, Ishizuka et al. disclose the data-driving apparatus according to claim 2. Ishizuka et al. also disclose wherein the current sink data drive integrated circuit further comprises:

a plurality of switches connected between the constant current supply switching devices and the data lines for controlling a supply time of the constant current supplied to the data lines to control a pulse width of a current signal (Figure 11, S1-Sm and column 6, line 54 to column 7, line 10).

**Regarding claim 4**, Ishizuka et al. disclose the data-driving apparatus according to claim 2. Ishizuka et al. also disclose wherein the constant current switching device and the constant current supply switching device comprise n-type MOSFETS (Column 9, lines 35-40).

**Regarding claim 14**, Ishizuka et al. disclose a data driving apparatus of an electro-luminescence display panel, comprising:

a display panel receiving a current signal to display an image (Figure 8, input image data); and

a data driver (Figure 8, items 200-203) having a plurality of current source data drive parts (Figure 8, items 200-203. The examiner interprets that the anode line driving circuits could be current source data drive parts.) in order to supply data to the display panel based on a constant current,

wherein at least one of the plurality of current source data drive parts comprises:

a current source data drive integrated circuit (Figure 8, item 200) for supplying the data to the display panel based on the constant current, and

a reference current supply/path part (Figure 8, item 200) for supplying the constant current to the current source data drive integrated circuit and, at a same time, supplying the same constant current to an adjacent current source data driver in a cascade circuit configuration (Column 9, lines 10-15).

**Regarding claim 15**, Ishizuka et al. disclose the data-driving apparatus according to claim 14. Ishizuka et al. also disclose wherein the current source data drive integrated circuit comprises:

a constant current switching device connected between a voltage source and a ground voltage source (Figure 11, Q<sub>e</sub> is connected to V<sub>BE</sub> and to ground through R<sub>Q2</sub>.); and

a plurality of constant current supply switching devices (Figure 11, Q1-Q<sub>m</sub>), each connected to the voltage source (Figure 11, Q1-Q<sub>m</sub> are connected to V<sub>BE</sub>.) to form a current mirror circuit with the constant current switching device for supplying the constant current to data lines of the panel by selecting switch devices corresponding to the constant current controlled in a 2<sup>n</sup> level through the constant current switching device (Column 6, line 54 to column 7, line 10).



**Regarding claim 16**, Ishizuka et al. disclose the data-driving apparatus according to claim 15. Ishizuka et al. also disclose wherein the current source data drive integrated circuit further comprises:

a plurality of switches connected between the constant current supply switching devices and the data lines for controlling a supply time of the constant current supplied to the data lines to control a pulse width of a current signal (Figure 11, S1-Sm and column 6, line 54 to column 7, line 10).

**Regarding claim 17**, Ishizuka et al. disclose the data-driving apparatus according to claim 15. Ishizuka et al. also disclose wherein the constant current switching device and the constant current supply switching device comprise n-type MOSFETs (Column 9, lines 35-40).

**Regarding claim 27**, Ishizuka et al. disclose a data-driving method of an electroluminescence display panel having

a pixel formed at each intersection part of scan lines and data lines (Figure 8, items E1,1-En,1, B1-Bn and A1-Am),

a scan driver to control the scan lines (Figure 8, item 30) and

a data driver to control the data lines (Figure 8, items 200-203) comprising steps of:

supplying a constant current generated by an external voltage source to a current sink data integrated circuit and an adjacent current sink data integrated circuit, which

are connected in a cascade circuit configuration within the data driver; and supplying data to the data lines based on the supplied constant current (Figure 8. The examiner interprets that the constant current IREF is simultaneously applied to item 201 and 202, which are arranged in a cascade configuration and which could be current sink circuits, through lin of item 201 and lin of item 202, since in Figure 9, the timing diagram shows timing between circuits 201 and 202 occurring at the same time.).

**Regarding claim 28**, Ishizuka et al. disclose a data-driving method of an electroluminescence display panel having a pixel formed at each intersection part of scan lines and data lines (Figure 8, items E1,1-En,1, B1-Bn and A1-Am),

a scan driver to control the scan lines (Figure 8, item 30) and

a data driver to control the data lines (Figure 8, items 200-203), comprising steps of:

supplying a constant current generated by an external voltage source to a current source data integrated circuit and an adjacent current source data integrated circuit, which are connected in a cascade circuit configuration within the data driver; and supplying data to the data lines based on the applied constant current (Figure 8. The examiner interprets that the constant current IREF is simultaneously applied to item 201 and 202, which are arranged in a cascade configuration and which could be current source circuits, through lin of item 201 and lin of item 202, since in Figure 9, the timing diagram shows timing between circuits 201 and 202 occurring at the same time.).

***Allowable Subject Matter***

5. Claims 5-13 and 18-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 5-12 and 18-26, the primary reason for allowance of the claims is the inclusion of the manner in which the switching devices are connected to form current mirror circuits, specifically the fifth switching device in claims 5 and 18 and the fourth switching device in claims 9 and 22 for transmitting the constant current to the adjacent current drivers, which is not found in the prior art references.

Regarding claims 13 and 26, the primary reason for allowance of the claims is the inclusion of the manner in which the switching devices are connected to form the cell driver circuit, specifically the seventh switching device used to form a current mirror with the sixth switching device, which is not found singularly or in combination in the prior art references.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen G. Sherman whose telephone number is (571) 272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SS

3 May 2006

AMR A. AWAD  
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read 'AMR A. AWAD', with a large, sweeping flourish extending to the right.